

WHAT IS CLAIMED IS:

1. A vehicle weight measuring structure comprising:
a base plate;
5 a plurality of support elements placed on the base plate, each support element having a pair of legs which project downward and are separated from each other by a predetermined distance to be brought into contact with the base plate, each leg having a free end serving as a contact
10 part which possesses a rounded contour; and
a structure body horizontally supported by the plurality of support elements in a manner such that an upper surface of the structure body and an upper surface of a road become coplanar, for transferring a load of a
15 vehicle traveling on the road to the support elements.
2. The structure as set forth in claim 1, further comprising:
a plurality of pressing members interposed between the
20 structure body and the support elements, respectively, to transfer downward pressing force of the structure body to the support elements.
3. The structure as set forth in claim 2, wherein each
25 pressing member comprises a round bar, and a pair of engagement grooves for engagement of each round bar are respectively defined on a lower surface of the structure body and an upper surface of each support element.
- 30 4. The structure as set forth in claim 2, wherein the upper surface of each support element includes a pressing surface which is brought into surface contact with an outer surface of the pressing member, the pair of legs of the

support element positioned directly below the pressing surface of each support element, the contact part of each leg brought into line contact with the base plate.

5 5. The structure as set forth in claim 1, wherein the contact parts of the pair of legs are defined with a pair of insertion grooves, respectively, which are aligned with each other.

10 6. The structure as set forth in claim 5, wherein one of the pair of legs comprises a steel piece formed in the contact parts, the steel piece allowing a position of the insertion grooves relative to the legs to be adjusted as desired.

15 7. The structure as set forth in claim 1, wherein the base plate comprises a band-shaped segment which extends in a direction perpendicular to a traveling direction of the vehicle;

20 the pair of support elements are provided to be positioned at both ends of the base plate, respectively; and

 the structure body comprises a beam which has an upper surface of a predetermined width and extends parallel to
25 the base plate.

 8. The structure as set forth in claim 1, wherein the base plate, the support element and the structure body are made of a metallic material.

30 9. A vehicle weight measuring apparatus comprising:
 a base plate received in a quadrangular opening which is dug in a road to have a predetermined depth, for

rendering a horizontal support surface;

a plurality of support elements placed on the base plate, each support element having a pair of legs which project downward from a lower surface of the support
5 element and are separated from each other by a predetermined distance to be brought into contact with the base plate, each leg having a free end serving as a contact part which possesses a rounded contour;

a structure body horizontally supported by the
10 plurality of support elements in a manner such that an upper surface of the structure body and an upper surface of a road become coplanar, for transferring a load of a vehicle traveling on the road to the support elements;

a sensor mounted to the lower surface of the support
15 element, for measuring a strain of the support element on the basis of a load transferred to the support element; and

a vehicle weight calculation unit connected to the sensor, for processing and converting strain information from the sensor into a vehicle weight.

20

10. The apparatus as set forth in claim 9, wherein the sensor comprises one selected from a group consisting of a strain gauge, a load cell, a capacitive sensor and an optical fiber sensor.

25

11. The apparatus as set forth in claim 9, wherein the base plate, the support element and the structure body are made of a metallic material.

30

12. A vehicle weight measuring apparatus comprising:
a base plate received in a quadrangular opening which is dug in a road to have a predetermined depth, for rendering a horizontal support surface;

a plurality of support elements placed on the base plate, each support element having a pair of legs which project downward from a lower surface of the support element and are separated from each other by a
5 predetermined distance;

an optical fiber sensor installed between the pair of legs and having both ends which are respectively fixed to the pair of legs;

a structure body horizontally supported by the
10 plurality of support elements in a manner such that an upper surface of the structure body and an upper surface of a road become coplanar, for transferring a load of a vehicle traveling on the road to the support elements; and

a vehicle weight calculation unit connected to the
15 optical fiber sensor, for processing and converting strain information inputted from the optical fiber sensor into a vehicle weight.

13. The apparatus as set forth in claim 12, wherein
20 each leg to be brought into contact with the base plate has a free end serving as a contact part which possesses a rounded contour.

14. The apparatus as set forth in claim 12, further
25 comprising:

a plurality of pressing members interposed between the structure body and the support elements, respectively, to transfer downward pressing force of the structure body to the support elements.

30

15. The apparatus as set forth in claim 14, wherein each pressing member comprises a round bar, and a pair of engagement grooves for engagement of each round bar are

respectively defined on a lower surface of the structure body and an upper surface of each support element.

16. The apparatus as set forth in claim 14, wherein
5 the upper surface of each support element includes a pressing surface which is brought into surface contact with an outer surface of the pressing member, the pair of legs of the support element positioned directly below the pressing surface of each support element, the contact part
10 of each leg brought into line contact with the base plate.

17. The apparatus as set forth in claim 12, wherein the contact parts of the pair of legs are defined with a
15 pair of optical fiber sensor-insertion grooves, respectively, which are aligned with each other.

18. The apparatus as set forth in claim 17, wherein one of the pair of legs comprises a steel piece formed in
20 the contact parts, the steel piece allowing a position of the insertion grooves relative to the legs to be adjusted as desired.

19. The apparatus as set forth in claim 12, wherein
25 the base plate comprises a band-shaped segment which extends in a direction perpendicular to a traveling direction of the vehicle;

a pair of support elements are provided to be positioned at both ends of the base plate, respectively;
30 and

the structure body comprises a beam which has an upper surface of a predetermined width and extends parallel to the base plate.

20. The apparatus as set forth in claim 12, wherein the optical fiber sensor comprises an interference type sensor or a Fiber Bragg Grating (FBG) sensor.